

Code No.: AI614OE

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CMR ENGINEERING COLLEGE: : HYDERABAD

UGC AUTONOMOUS

III-B.TECH-II-Semester End Examinations (Regular) - June- 2024

DATA ANALYTICS AND VISUALIZATION

(CSC)

[Time: 3 Hours]

[Max. Marks: 70]

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 20 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

(20 Marks)

1. a) Explain the role of preprocessing in data analytics and visualization? [2M]
- b) What is the importance of data architecture in the context of data analysis? [2M]
- c) Give examples of data analytics techniques commonly used in business? [2M]
- d) What is missing imputation in the context of data analysis? [2M]
- e) What is linear regression? [2M]
- f) What are the key components of logistic regression. [2M]
- g) Name two common algorithms used for object segmentation. [2M]
- h) Differentiate between univariate and multivariate time series. [2M]
- i) Why is data visualization important in data analysis? [2M]
- j) Name two tools commonly used for creating data visualizations. [2M]

PART-B

(50 Marks)

2. Discuss the challenges associated with data cleaning and preprocessing in data analytics and visualization. How can these challenges be addressed effectively? [10M]
- OR**
3. Explore the process of designing a data architecture specifically tailored for supporting data analytics and visualization projects. What are the critical steps involved? [10M]
4. Explain different data modeling techniques. [10M]
- OR**
5. Discuss the different types of missing data mechanisms, including missing completely at random (MCAR), missing at random (MAR), and missing not at random (MNAR). How do these mechanisms influence the choice of imputation methods? [10M]
6. Explain different analytics applications to business domain? [10M]
- OR**
7. Describe the process of fitting a linear regression model to a dataset. Include data preparation, model fitting, and evaluation. [10M]
8. Compare and contrast different object segmentation techniques in terms of their application, accuracy, and visualization challenges. [10M]
- OR**
9. Explain how seasonal decomposition of time series (STL) works and provide an example of its application and visualization. [10M]

10. A) What is data visualization, and why is it important? [5M]
B) Name some common data visualization tools and their key features. [5M]

OR

11. Explain about icon-based visualization techniques? [10M]
